

# **AGU Chapman Conference on Ecosystem Interactions with Land Use Change**

14-18 June 2003  
Santa Fe, New Mexico

## **Objective**

Human conversion and modification of ecosystems to produce food and fiber, extract natural resources, and expand urban areas is one of the key modes of global change. Land use change, while essential for satisfying human needs, involves trade-offs with other ecosystem services and functions such as watershed protection, biogeochemical cycling, soil degradation, and habitats for other species. The conference will bring together researchers addressing various aspects of ecosystem responses to land use change and the feedbacks to sustainable land use. Sessions will address the responses and feedbacks over a range of ecosystems at multiple scales from local to regional to global. The conference will also provide opportunities for researchers working on different aspects of land use/land cover to share information on methodological approaches, observational strategies, and feedbacks among ecosystem processes.

## **Preliminary Topics and Issues**

To focus the conference on a broad but tractable set of issues related to ecosystem interactions with land use change, the following topics will be addressed.

***Biogeochemical interactions with land use change.*** Biogeochemical processes ultimately mediate the response of ecosystems to land use change. Biogeochemistry will be addressed at a range of spatial scales, from the role of land use change in the major global elemental cycles of carbon, water and plant nutrients to plot level experiments in ecosystems.

***Implications of land use change for water quality and quantity.*** Water quality and quantity, key resources for human society, are affected by land use practices. The roles of land use change in hydrologic processes such as near-surface hydrological transport, flooding and maintenance of water quality within both large and small watersheds will be addressed.

***Biophysical feedbacks to climate.*** Land cover is a significant consideration in energy, momentum, and water exchanges between the atmosphere and biosphere. These interactions are being incorporated in climate models with increasing sophistication. Case studies, observational evidence, and modeling experiments will be discussed during this portion of the conference.

***Land use change and human welfare.*** Sessions will address the effects of land use

change on human health and disease vectors, cities as ecosystems, trade offs between agricultural production and ecosystem services, and historical examples of linkages between unsustainable land use practices and depletion of the natural resource base.

***Effects of land use change on biodiversity.*** The human enterprise often impacts the distribution, abundance and interactions of floral and fauna in ecosystems. Sessions will examine the relationship between land use and biodiversity across a range of ecosystems and biomes. Emphasis will be placed on the relationship between land use, fragmentation, and habitat loss in ecosystems

***Observing and predicting land use change.*** The conference will include sessions that explore methods to quantify land cover change through remote sensing, hindcasting of land use change over the last several centuries, and predictive approaches incorporating socioeconomic and demographic factors involved in land use change.

## **Field Trip**

A field trip to the Chaco Canyon National Monument in northwestern New Mexico will be an integral part of the conference. This national monument is the site of the ancient Anasazi civilization with complex road networks and multistory dwellings. The collapse of this advanced civilization is associated with conversion from woodland to barren desert. Recent theories about the cause of the collapse hypothesize that overexploitation of the forest resource for building wooden structures was a primary factor. The field trip will underscore the relationship between land use and the natural resource base for human societies.

## **Format and Schedule**

The conference will include four full days of presentations, discussions, and posters. Poster sessions will be held each day on the topics of the oral sessions. One full day will be devoted to a field trip to the Chaco Canyon National Monument. Each half-day will be devoted to a primary topic as listed above.

## **Tentative Program Committee**

Questions related to the scientific program should be addressed to the conveners of the conference.

### **Conveners**

Ruth DeFries, Associate Professor, Department of Geography and Earth System Science Interdisciplinary Center. University of Maryland, College Park, MD 20742, tel: +1-301 405 4884; fax +1-301 314 9299; e-mail [rd63@umail.umd.edu](mailto:rd63@umail.umd.edu)

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### **Committee Members**

Gretchen Daily, Stanford University

Margaret Palmer, Dept. of Biology, University of Maryland, College Park, Maryland

Keith Eshleman, Center for Environmental Science, Appalachian Laboratory  
University of Maryland, College Park, MD

Jonathan Foley, Center for Sustainability and the Global Environment (SAGE)  
University of Wisconsin - Madison, WI

Gordon Bonan, Scientist III, National Center for Atmospheric Research  
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Jonathan Patz, School of Public Health and Hygiene, Johns Hopkins University,  
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Robert Thompson, Chief Scientist, Global Change and Climate History Program  
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Dennis Ojima, Natural Resource Ecology Laboratory, Colorado State University  
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Emilio Moran, Anthropological Center for Training and Research on Global  
Environmental Change, Indiana University, Bloomington, IN

Alan Townsend, University of Colorado, Boulder, CO

Jeff McDonnell, Oregon State University, Portland, OR

### **Abstract Submissions**

Abstract Deadline is 04 March 2003. See <http://www.agu.org/meetings/chapman.html>

### **Travel Support**

#### **Application Deadline: 04 March 2003**

Applications are being made to several U.S. agencies to support travel of conference participants. Graduate students and young scientists will receive priority for

funding. To apply for travel funds, please print and complete the Chapman Conference Travel Grant Application, and return it to the AGU Meetings Department by 04 March 2003.

### **Conference Location and Facility**

The conference will be in Santa Fee, New Mexico at the Marriott Courtyard. Hotel rates for the conference will be \$89 single and \$99 double occupancy. The rates are exclusive of local taxes and fees, which are currently 11.44%. Information for reserving hotel rooms will be posted in February 2003.